

ABSTRACT

The present invention provides a drilling assembly for drilling deviated wellbores. The drilling assembly includes a drill bit at the lower end of the drilling assembly. A drilling motor provides the rotary power to the drill bit. A bearing assembly of the drilling motor provides lateral and axial support to the drill shaft connected to the drill bit. A steering device is integrated into drilling motor assembly. The steering device contains a plurality of force application members disposed at an outer surface of the drilling motor assembly. Each force application member is adapted to move between a normal position and a radially extended position to exert force on the wellbore interior when in extended position. A power unit in the housing provides pressurized fluid to the force application members. A control device for independently operating each of the force application members is disposed in the drilling motor assembly. A control circuit or unit independently controls the operation of the control device to independently control each force application member. For short radius drilling, a knuckle joint is disposed uphole of the steering device to provide a bend in the drilling assembly. During drilling of a wellbore, the force application members are operated to adjust the force on the wellbore to drill the wellbore in the desired direction.